



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,287	11/02/2001	Je-suk Lee	SAM-0279	9042

7590 01/27/2005

Steven M. Mills
MILLS & ONELLO LLP
Suite 605
Eleven Beacon Street
Boston, MA 02108

EXAMINER

JELINEK, BRIAN J

ART UNIT	PAPER NUMBER
----------	--------------

2615

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/000,287	LEE ET AL.	
	Examiner	Art Unit	
	Brian Jelinek	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/2/2001</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This is a first office action in response to application no. 10/000,287 filed on 11/2/2001 in which claims 1-20 are presented for examination.

Election/Restrictions

During a telephone conversation with Steve Mills on (Reg. No. 36610) on 12/16/2004 a provisional election was made without traverse to prosecute the invention of the elected group II, claims 11-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-10, drawn to a CCD with line boundaries comprising a first and second comparison signal, multiplexer and comparator, classified in class 348, subclass 317.
- II. Claims 11-20, drawn to CMOS line skipping, classified in class 348, subclass 308.

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as object tracking. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada et al. (U.S. Pat. No. 6,124,888).

Regarding claim 11, Terada et al. discloses a high-speed image pickup method of an image sensor including m horizontal lines (Fig. 1) with a plurality of pixels and an analog-to-digital converter (col. 11, lines 30-38), where m is an integer greater than zero, the method comprising the steps of: (a) applying a vertical selection signal (col. 13, line 15, vertical selection pulse) in response to a vertical shift clock signal (col. 10, lines 21-33), thereby enabling a first horizontal line among the m horizontal lines; (b) applying a vertical transmission signal (col. 13, lines 26-40), thereby outputting a charge signal of the first horizontal line to the analog-to-digital converter; (c) applying a vertical erasure signal, thereby erasing the charge signal of the first horizontal line (col. 13, lines 42-48); (d) shifting the vertical selection signal in response to the vertical shift clock signal, thereby enabling a second horizontal line (col. 13, lines 52-60); (e) applying the vertical erasure signal, thereby erasing a charge signal of the second horizontal line (see col. 13, lines 42-48); (f) shifting the vertical selection signal in response to the vertical shift clock signal, thereby enabling a horizontal line following the first horizontal line (see col. 13, lines 52-60) ; and (g) applying the vertical transmission signal, thereby

outputting a charge signal of the horizontal line following the first horizontal line to the analog-to-digital converter (see col. 13, lines 26-40).

Terada et al. further discloses the image sensor is a CMD image sensor (Fig. 7, element 103), not a CMOS image sensor. Official Notice is given that it is well known in the art to configure an image sensor using either CMD or CMOS elements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have configured the image sensor of Terada using either CMD or CMOS elements because a CMOS image sensor is recognized as an obvious variation of a CMD image sensor.

Regarding claim 16, Terada et al. discloses a high-speed image pickup controller of an image sensor including m horizontal lines (Fig. 1) with a plurality of pixels and an analog-to-digital converter (col. 11, lines 30-38), where m is an integer greater than zero, the controller comprising: a vertical shifter (Fig. 8, element 208, vertical scanning circuit) for receiving a vertical selection signal (col. 13, line 15, vertical selection pulse) in response to a vertical shift clock signal (col. 10, lines 21-33) and generating an internal vertical selection signal to enable a first horizontal line or a second horizontal line among the m horizontal lines (Fig. 8, element 207, vertical selection line); a vertical erasure signal generator for receiving a system clock signal, generating a vertical erasure signal for erasing a charge signal of a horizontal line, and applying the vertical erasure signal to the first or second horizontal line (col. 13, lines 42-48); and a vertical transmission signal generator for receiving the system clock signal, generating a vertical transmission signal for outputting a charge signal of a horizontal line, and applying the

Art Unit: 2615

vertical transmission signal to the first horizontal line and a horizontal line following the first horizontal line (col. 13, lines 26-40 and 52-60).

Terada et al. further discloses the image sensor is a CMD image sensor (Fig. 7, element 103), not a CMOS image sensor. Official Notice is given that it is well known in the art to configure an image sensor using either CMD or CMOS elements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have configured the image sensor of Terada using either CMD or CMOS elements because a CMOS image sensor is recognized as an obvious variation of a CMD image sensor.

Claims 12-13, 15, 17-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada et al. (U.S. Pat. No. 6,124,888) in view of Roberts (U.S. Pat. No. 5,541,654).

Regarding claim 12, Terada et al. discloses reading the sensor sequentially, row-by-row. Terada et al. does not disclose a first horizontal line is an arbitrary horizontal line among the m horizontal lines.

However, Roberts discloses random access of groups of image elements in the array where the first horizontal line is an arbitrary horizontal line among the m horizontal lines (Abstract, lines 8-13; Fig. 6, elements 172 and 174). One of ordinary skill in the art would have provided random access of image elements for the purpose of processing output signals indicative of only a selected part of image sensor (Abstract, lines 8-13). As a result, it would have been obvious to one of ordinary skill in the art at the time of

Art Unit: 2615

the invention to have provided the first horizontal line as arbitrary horizontal line among the m horizontal lines for the purpose of processing output signals indicative of only a selected part of image sensor.

Regarding claim 13, please see the rejection of claim 12 and further note that Roberts discloses the second horizontal line is an arbitrary horizontal line between the first horizontal line and the m -th horizontal line (Abstract; Fig. 6, elements 172 and 174).

Regarding claim 15, Terada et al. does not disclose a rate at which the vertical shift clock signal is enabled can be adjusted.

However, Roberts does disclose a rate at which the vertical shift clock signal is enabled can be adjusted (col. 10, lines 11-20). One of ordinary skill in the art would have provided a vertical shift clock signal with an adjustable rate in order to increase frame rate (col. 10, lines 15-20). As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have provided a vertical shift clock signal with an adjustable rate in order to increase frame rate.

Regarding claim 17, please see the rejection of claim 12.

Regarding claim 18, please see the rejection of claim 13.

Regarding claim 20, please see the rejection of claim 15.

Claims 14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada et al. (U.S. Pat. No. 6,124,888) in view of Petrick et al. (U.S. Pat. No. 5,668,375).

Regarding claim 14, Terada et al. discloses a vertical erasure signal during a horizontal blanking period (col. 13, lines 42-48). Terada et al. does not disclose the vertical erasure signal is enabled twice during a single period of a horizontal synchronizing signal.

However, Petrick et al. discloses performing a second resetting during a period of scanning of a single row (col. 3, lines 38-43; col. 2, line 64-col. 3, line 7). One of ordinary skill in the art would have provided a second resetting during a period of scanning of a single row for the purpose of reducing the magnitude of a ghost image (col. 3, lines 38-40). As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have enabled the vertical erasure signal twice during a single period of a horizontal synchronizing signal for the purpose of reducing the magnitude of a ghost image.

Regarding claim 19, please see the rejection of claim 14.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Jelinek whose telephone number is (703) 305-4724. The examiner can normally be reached on M-F 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2615

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian Jelinek
1/21/2005



ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600